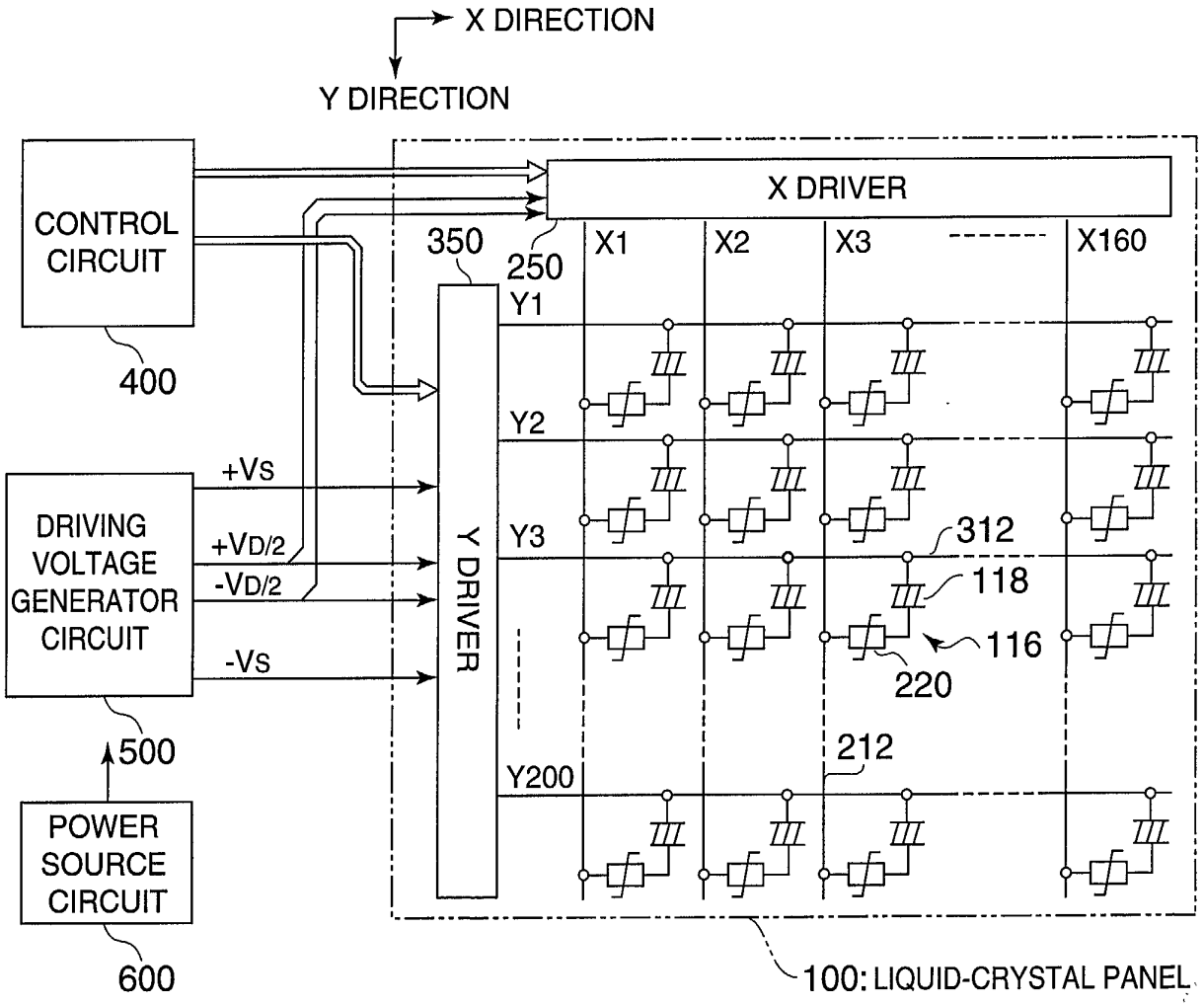
JP2003-255860

FIG. 1



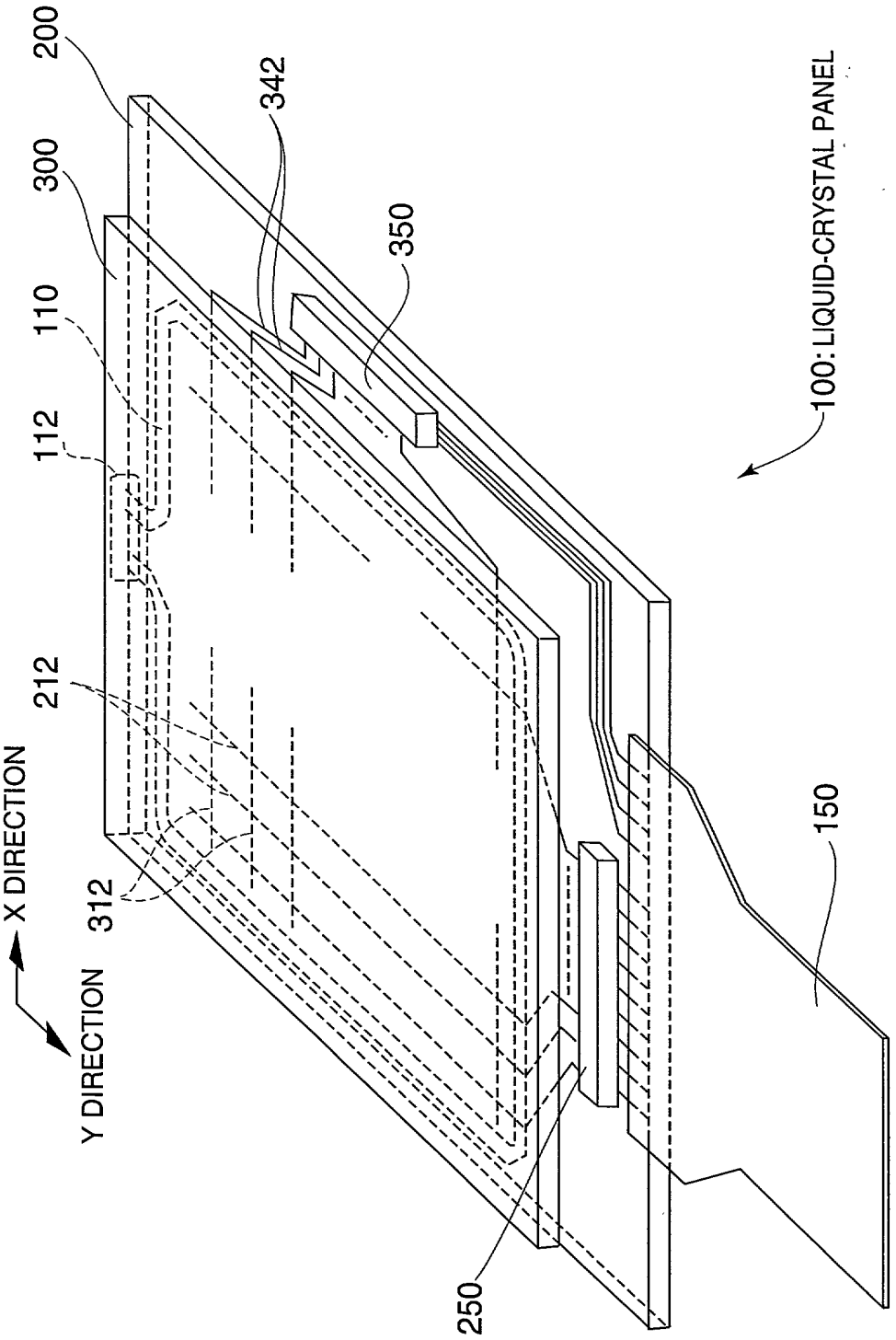
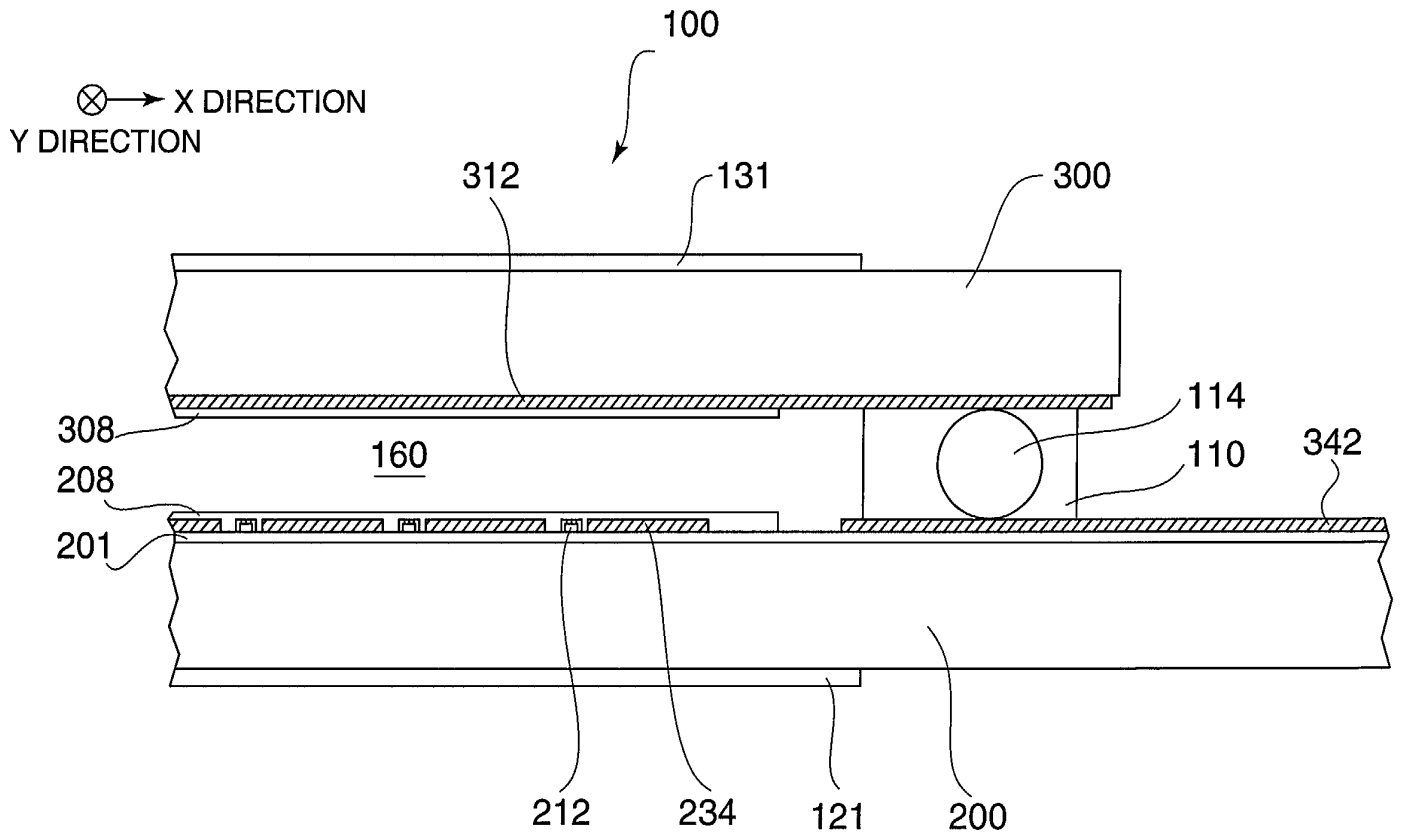

200
342
300
350
110
112
212
312
X DIRECTION
Y DIRECTION
100: LIQUID-CRYSTAL PANEL
150
250

FIG. 2

FIG. 3


100
X DIRECTION
Y DIRECTION
312
131
300
114
308
160
110
342
208
201
212
234
121
200

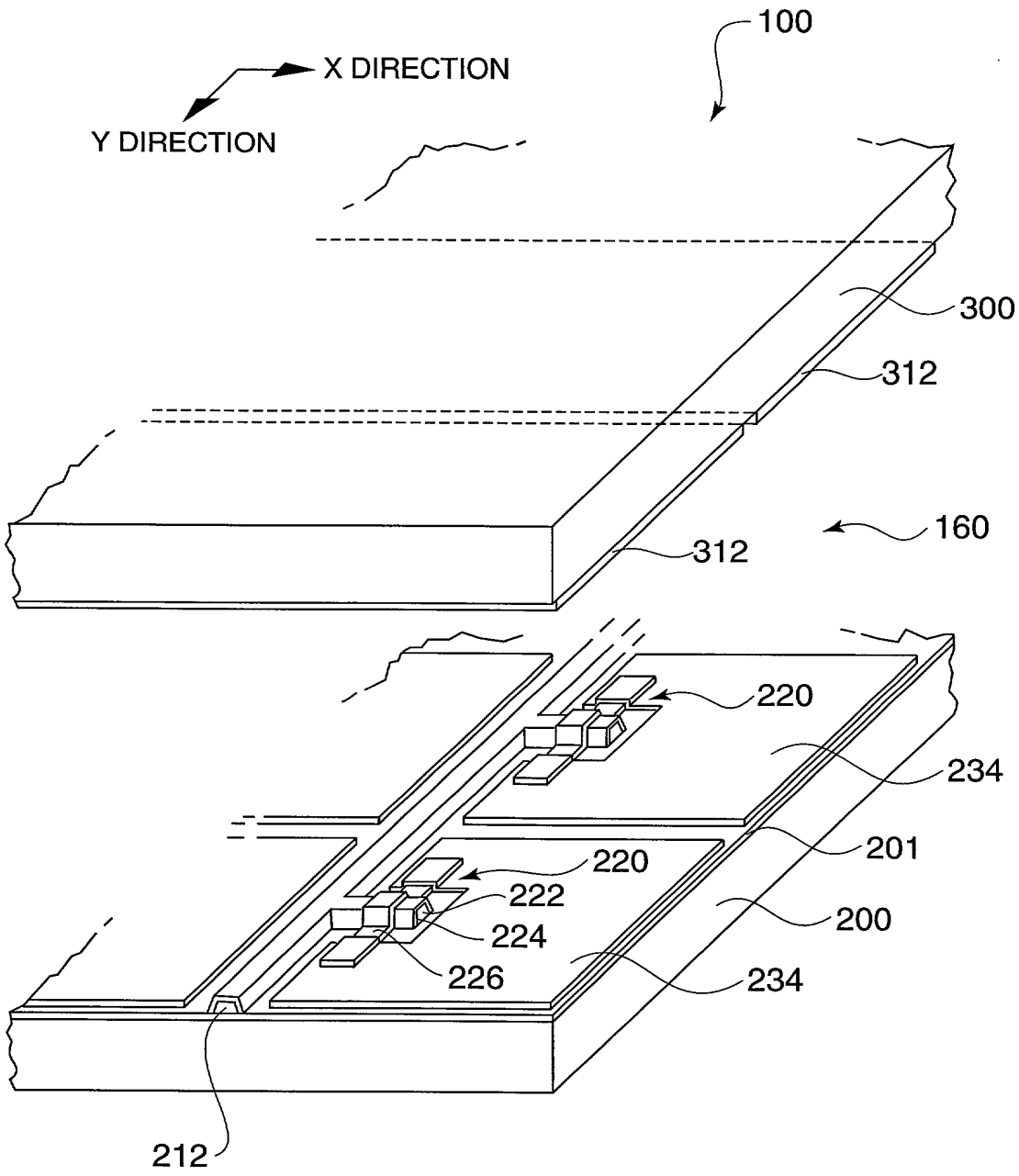

100
X DIRECTION
Y DIRECTION
300
312
312
160
220
234
201
220
222
224
226
200
234
212

FIG. 4

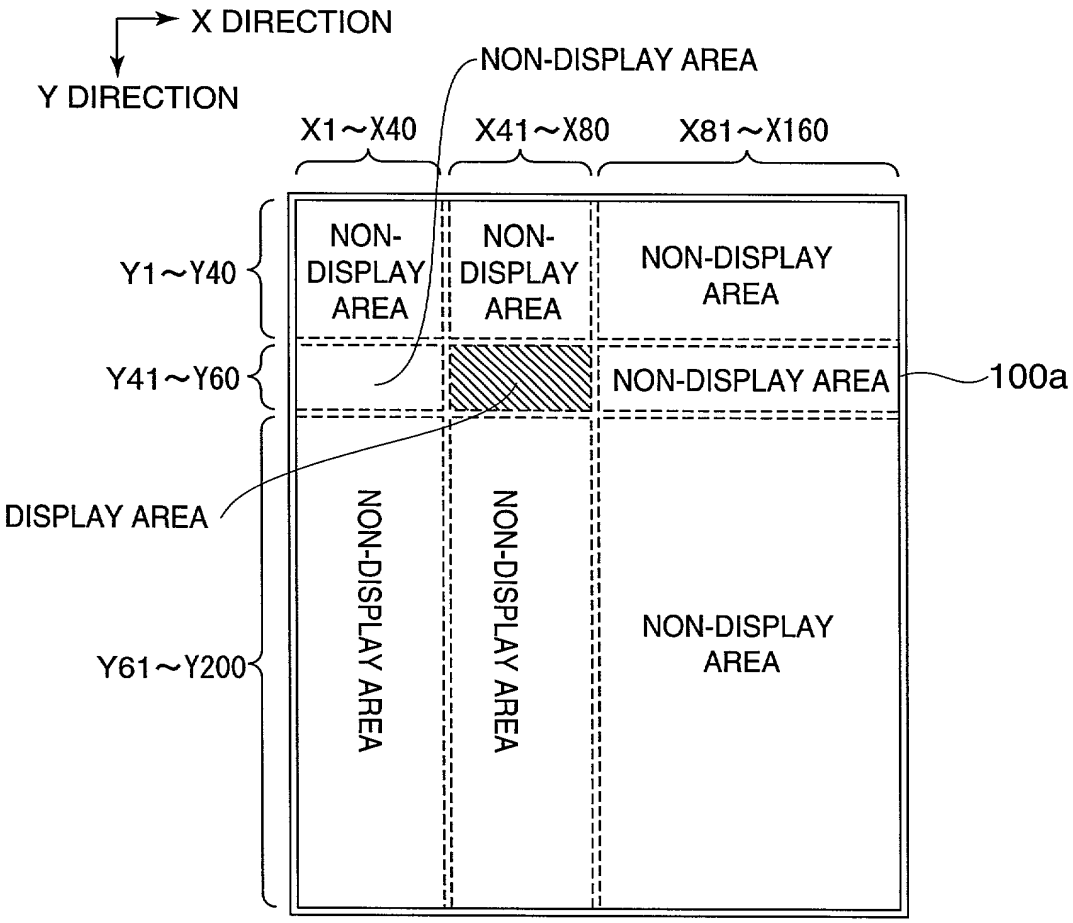

X DIRECTION
Y DIRECTION
NON-DISPLAY AREA
X1~X40
X41~X80
X81~X160
Y1~Y40
Y41~Y60
Y61~Y200
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
100a
DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA

FIG. 5

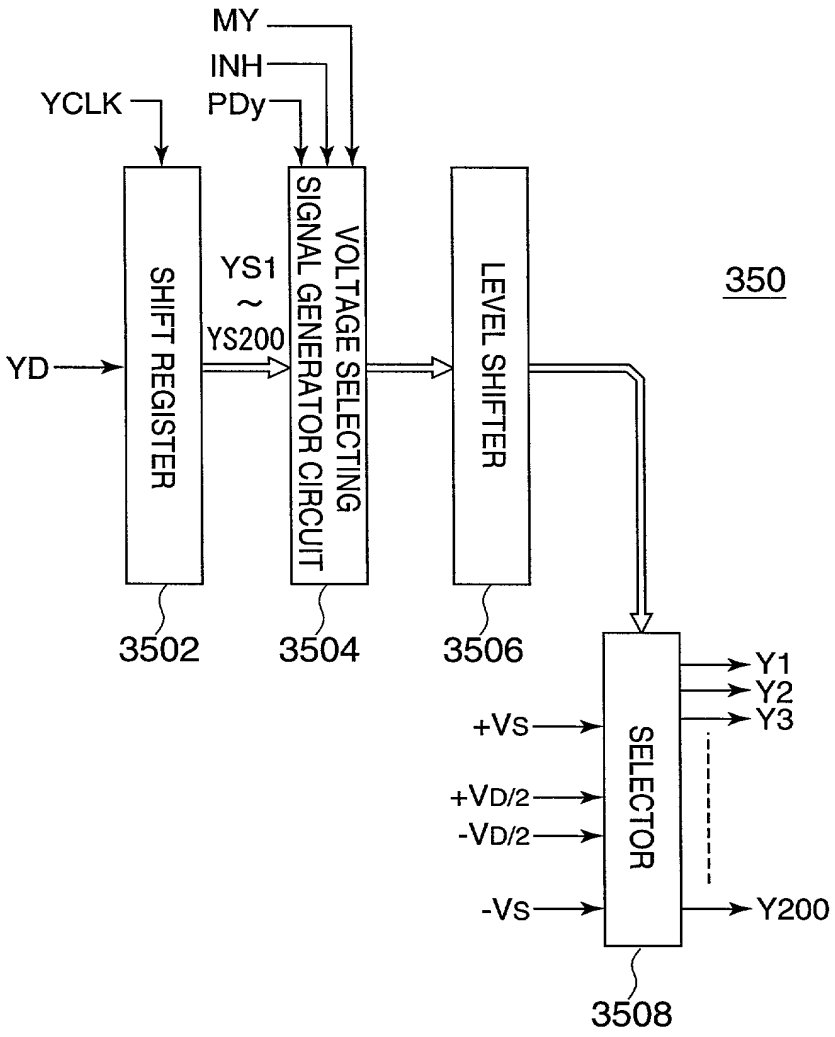

MY
INH
YCLK
PDy
SHIFT REGISTER
VOLTAGE SELECTING SIGNAL GENERATOR CIRCUIT
LEVEL SHIFTER
350
YS1
~
YS200
YD
3502
3504
3506
Y1
Y2
Y3
+Vs
+VD/2
-VD/2
-Vs
SELECTOR
Y200
3508

FIG. 6

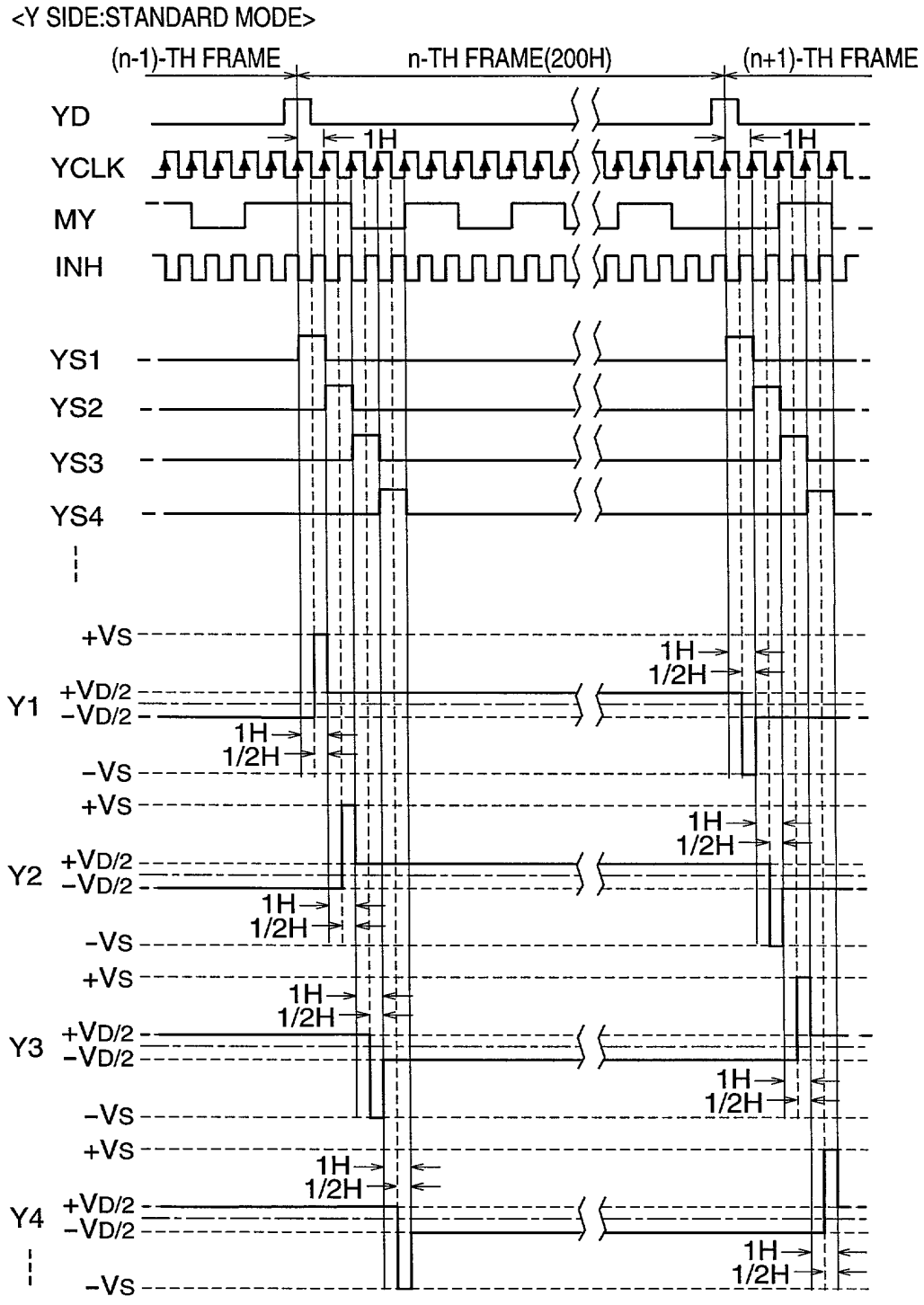

<Y SIDE:STANDARD MODE>
(n-1)-TH FRAME
n-TH FRAME(200H)
(n+1)-TH FRAME
YD
YCLK
MY
INH
1H
YS1
YS2
YS3
YS4
+VS
-VS
Y1
Y2
Y3
Y4
+VD/2
-VD/2
1/2H

FIG. 7

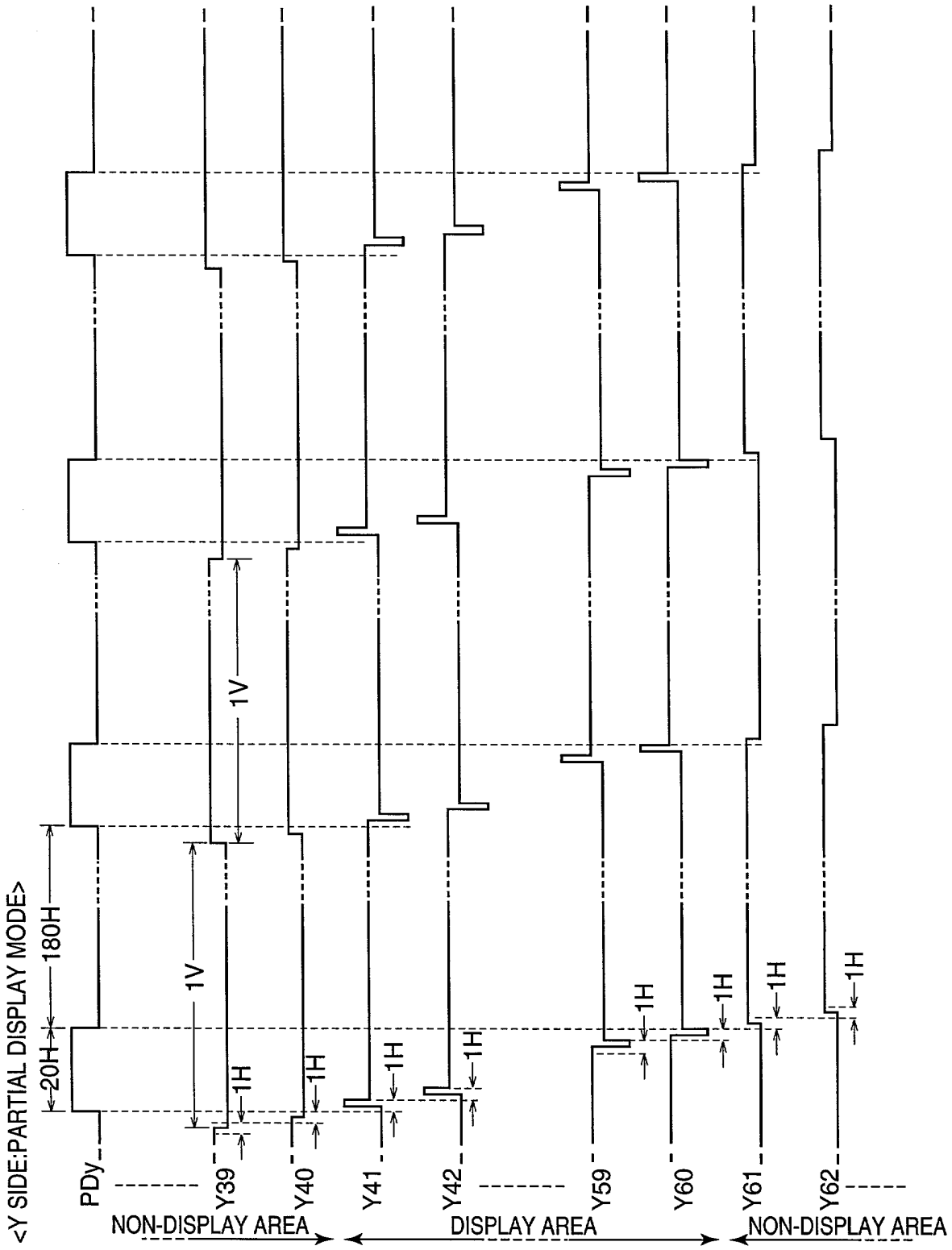

<Y SIDE:PARTIAL DISPLAY MODE>
180H
20H
1V
1V
1H
1H
1H
1H
1H
1H
1H
PDy
Y39
Y40
Y41
Y42
Y59
Y60
Y61
Y62
NON-DISPLAY AREA
DISPLAY AREA
NON-DISPLAY AREA

FIG. 8

PCT/JP2005/023650

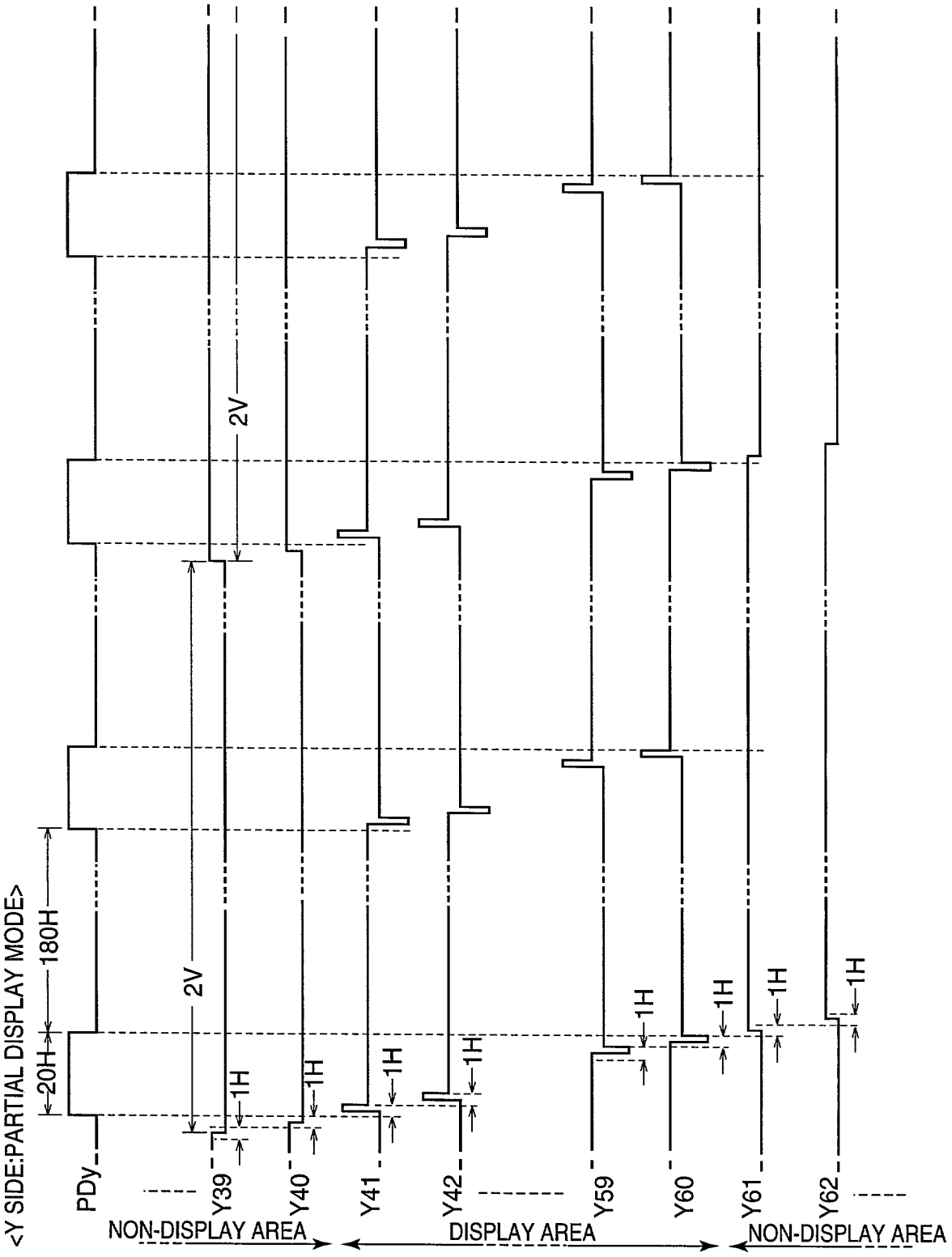



FIG. 9

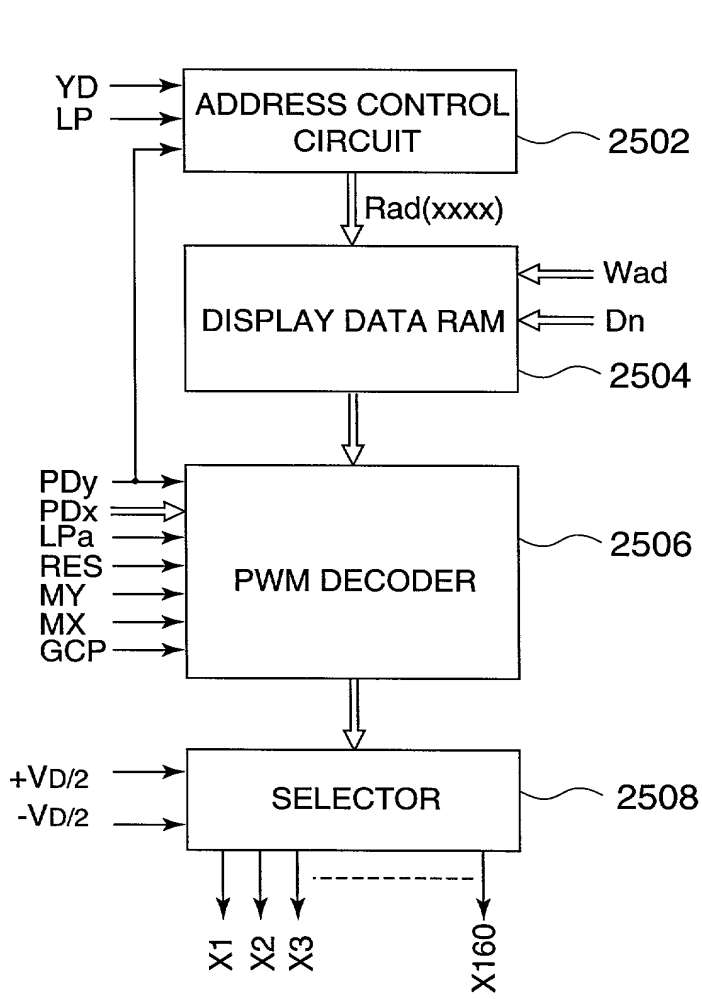
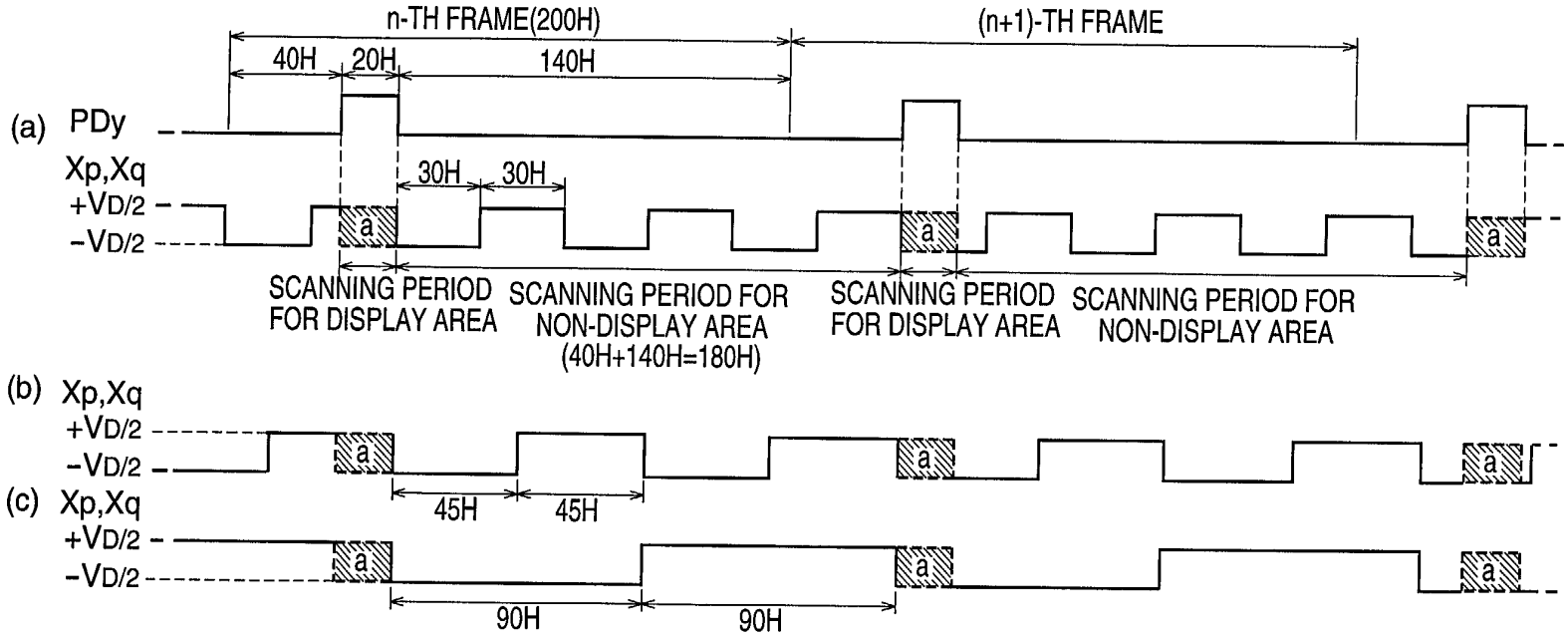

250
YD
LP
ADDRESS CONTROL CIRCUIT
2502
Rad(xxxx)
Wad
Dn
DISPLAY DATA RAM
2504
PDy
PDx
LPa
RES
MY
MX
GCP
PWM DECODER
2506
+VD/2
-VD/2
SELECTOR
2508
X1
X2
X3
X160

FIG. 10

FIG. 11


<X SIDE:PARTIAL DISPLAY MODE>
n-TH FRAME(200H)
(n+1)-TH FRAME
40H
20H
140H
(a) PDy
Xp,Xq
+VD/2
-VD/2
30H
30H
a
SCANNING PERIOD FOR DISPLAY AREA
SCANNING PERIOD FOR NON-DISPLAY AREA (40H+140H=180H)
SCANNING PERIOD FOR DISPLAY AREA
SCANNING PERIOD FOR NON-DISPLAY AREA
(b) Xp,Xq
+VD/2
-VD/2
45H
45H
(c) Xp,Xq
+VD/2
-VD/2
90H
90H

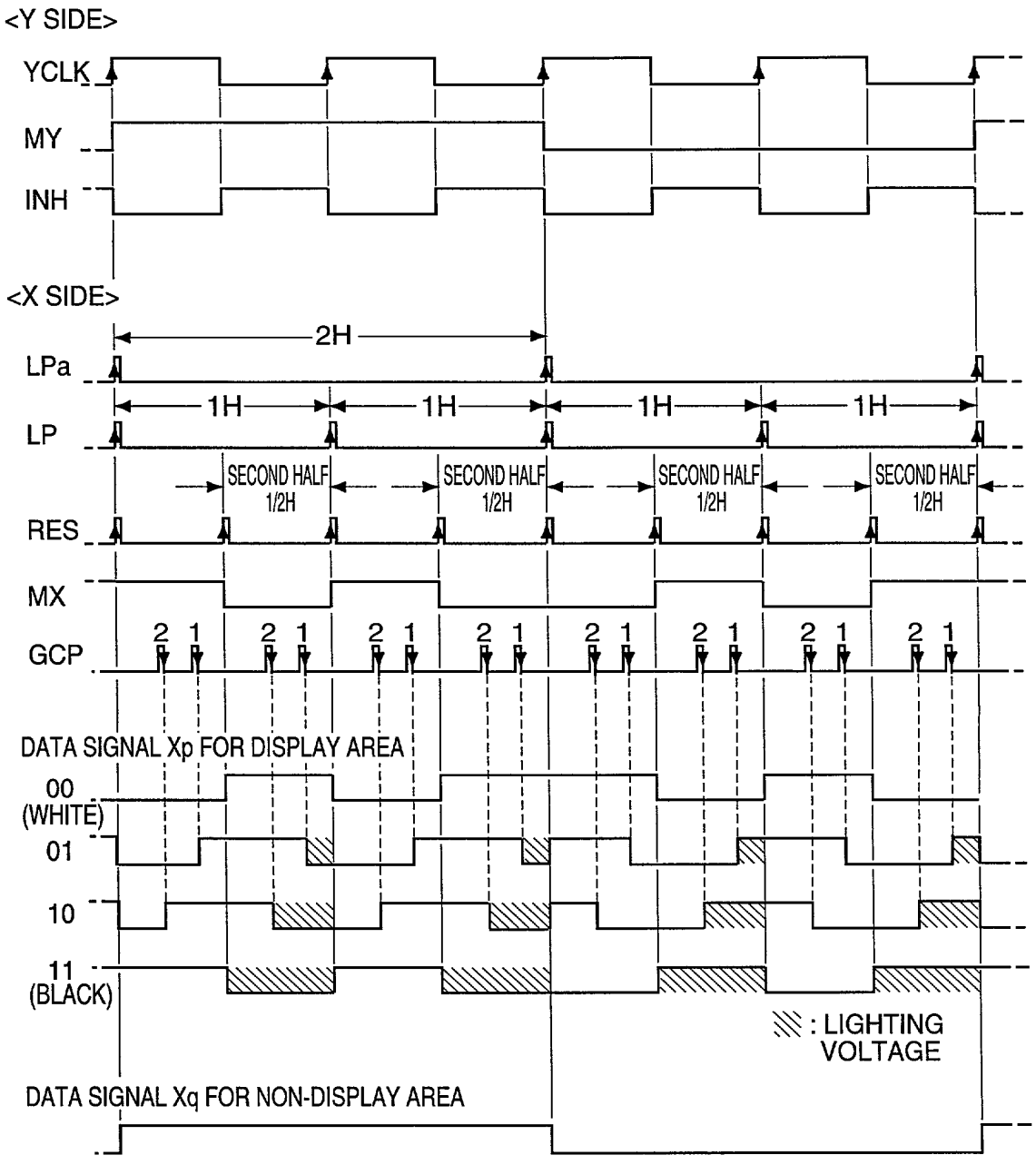

<Y SIDE>
YCLK
MY
INH
<X SIDE>
2H
LPa
1H
1H
1H
1H
LP
SECOND HALF 1/2H
SECOND HALF 1/2H
SECOND HALF 1/2H
SECOND HALF 1/2H
RES
MX
GCP
2 1
DATA SIGNAL Xp FOR DISPLAY AREA
00 (WHITE)
01
10
11 (BLACK)
: LIGHTING VOLTAGE
DATA SIGNAL Xq FOR NON-DISPLAY AREA

FIG. 12

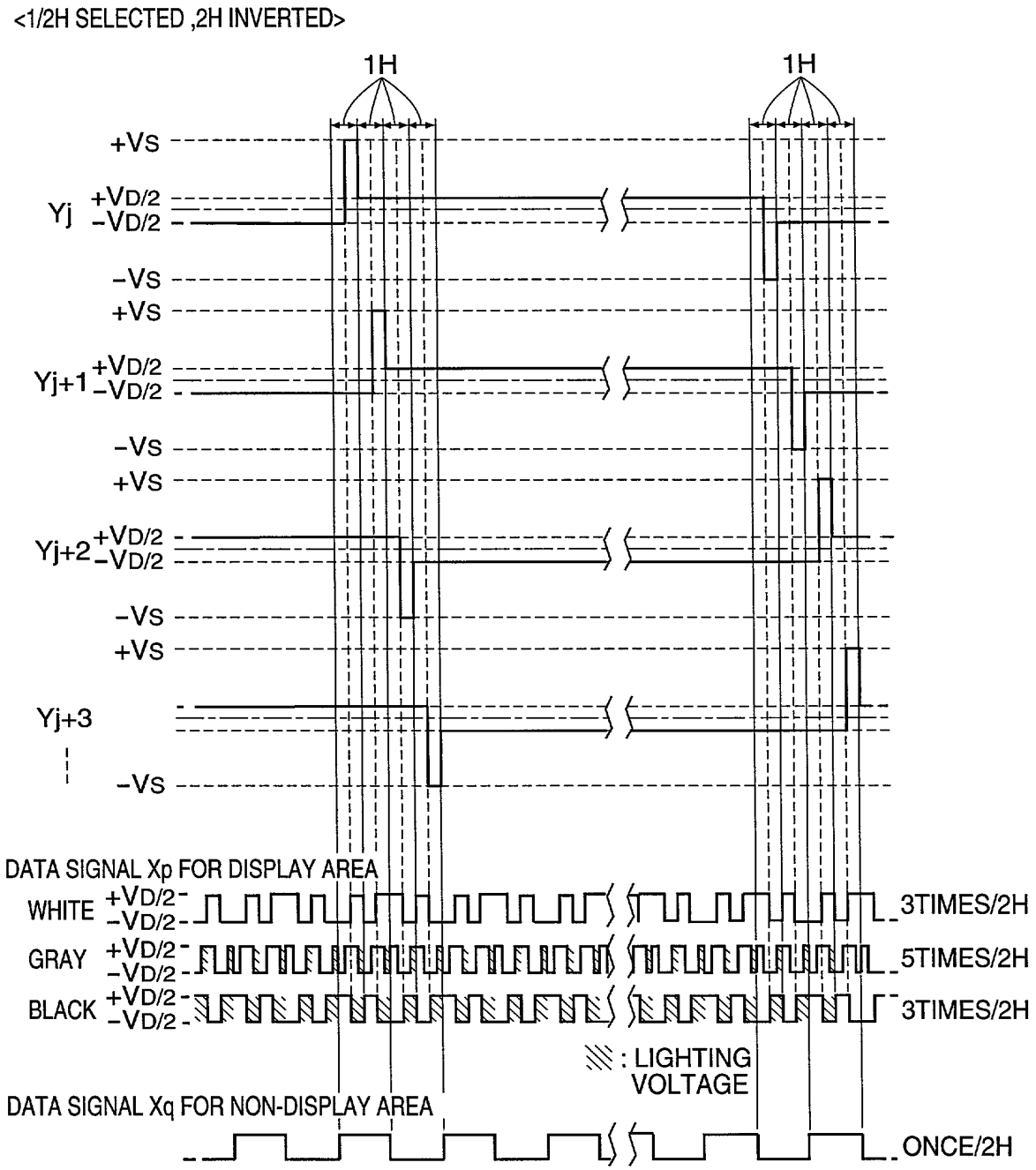

<1/2H SELECTED ,2H INVERTED>
1H
1H
+Vs
Yj
+VD/2
-VD/2
-Vs
+Vs
Yj+1
+VD/2
-VD/2
-Vs
+Vs
Yj+2
+VD/2
-VD/2
-Vs
+Vs
Yj+3
-Vs
DATA SIGNAL Xp FOR DISPLAY AREA
WHITE
+VD/2
-VD/2
3TIMES/2H
GRAY
+VD/2
-VD/2
5TIMES/2H
BLACK
+VD/2
-VD/2
3TIMES/2H
: LIGHTING VOLTAGE
DATA SIGNAL Xq FOR NON-DISPLAY AREA
ONCE/2H

FIG. 13

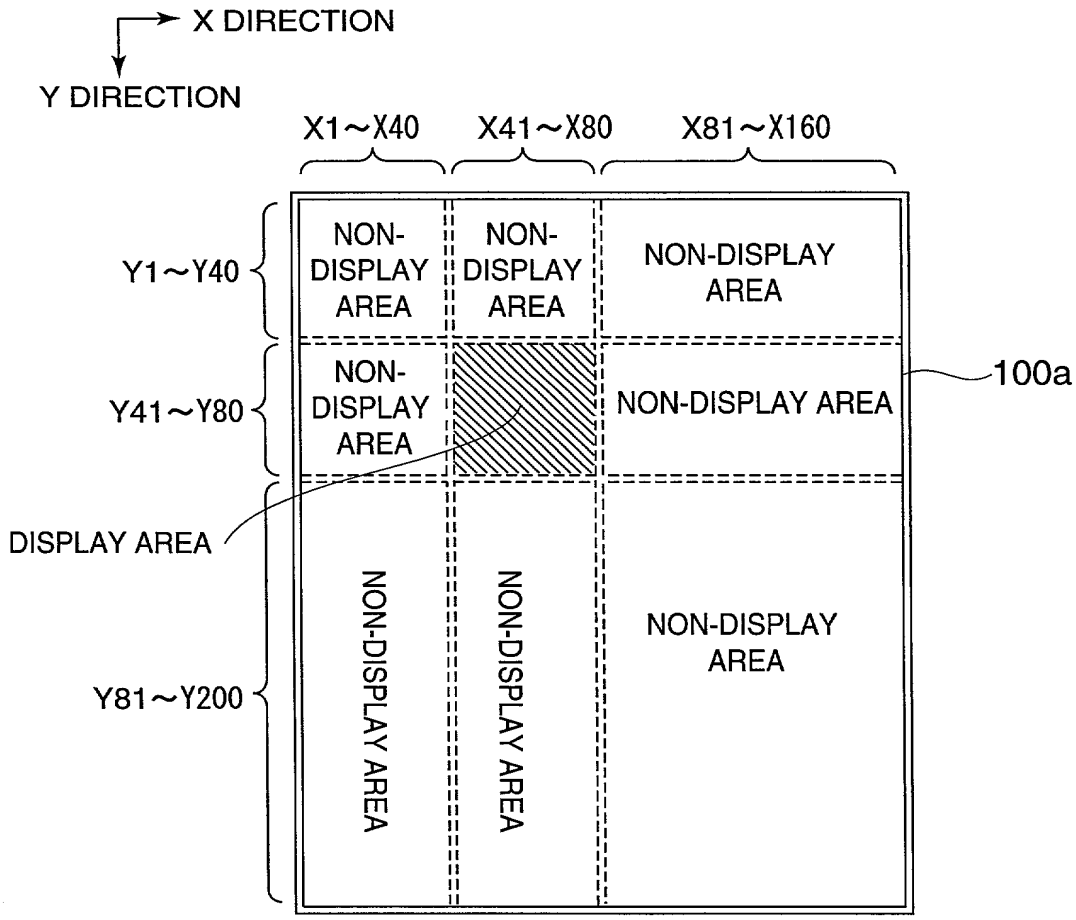
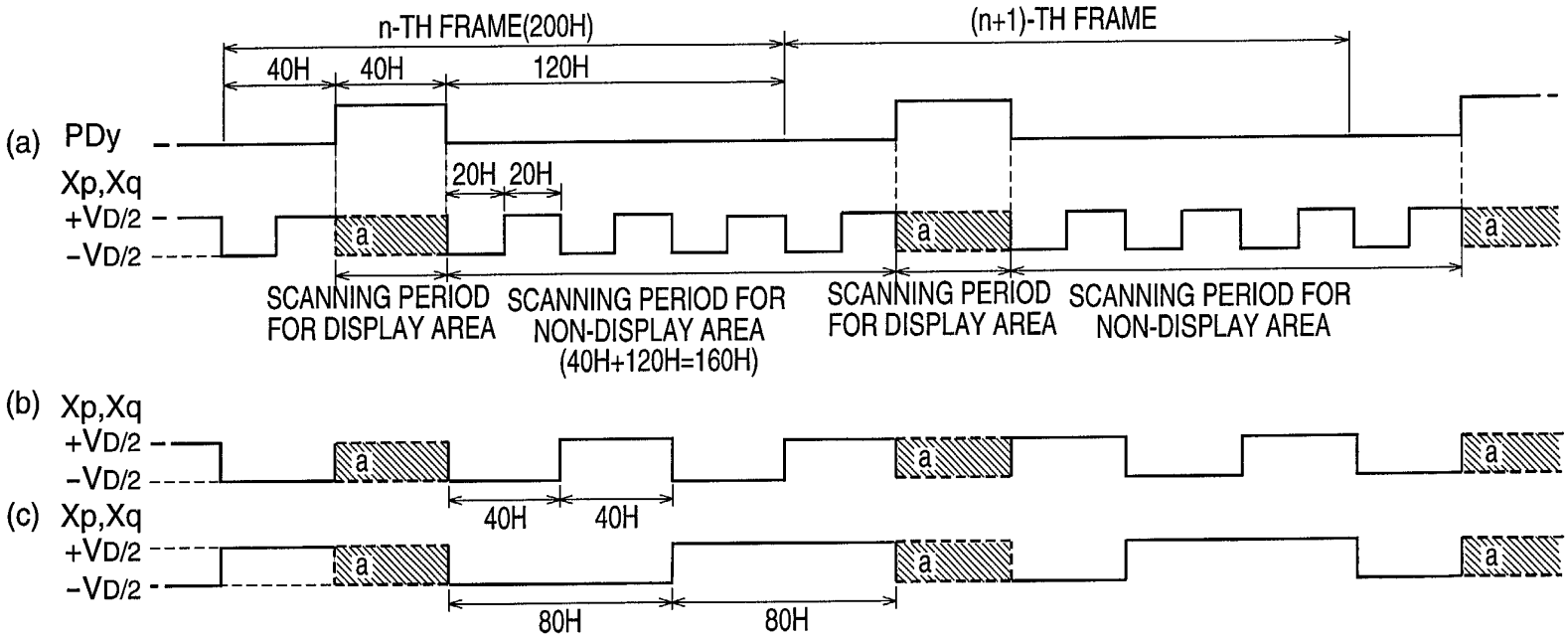

X DIRECTION
Y DIRECTION
X1~X40
X41~X80
X81~X160
Y1~Y40
Y41~Y80
Y81~Y200
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
NON-DISPLAY AREA
DISPLAY AREA
100a

FIG. 14

JOETT EAST2660

FIG. 15



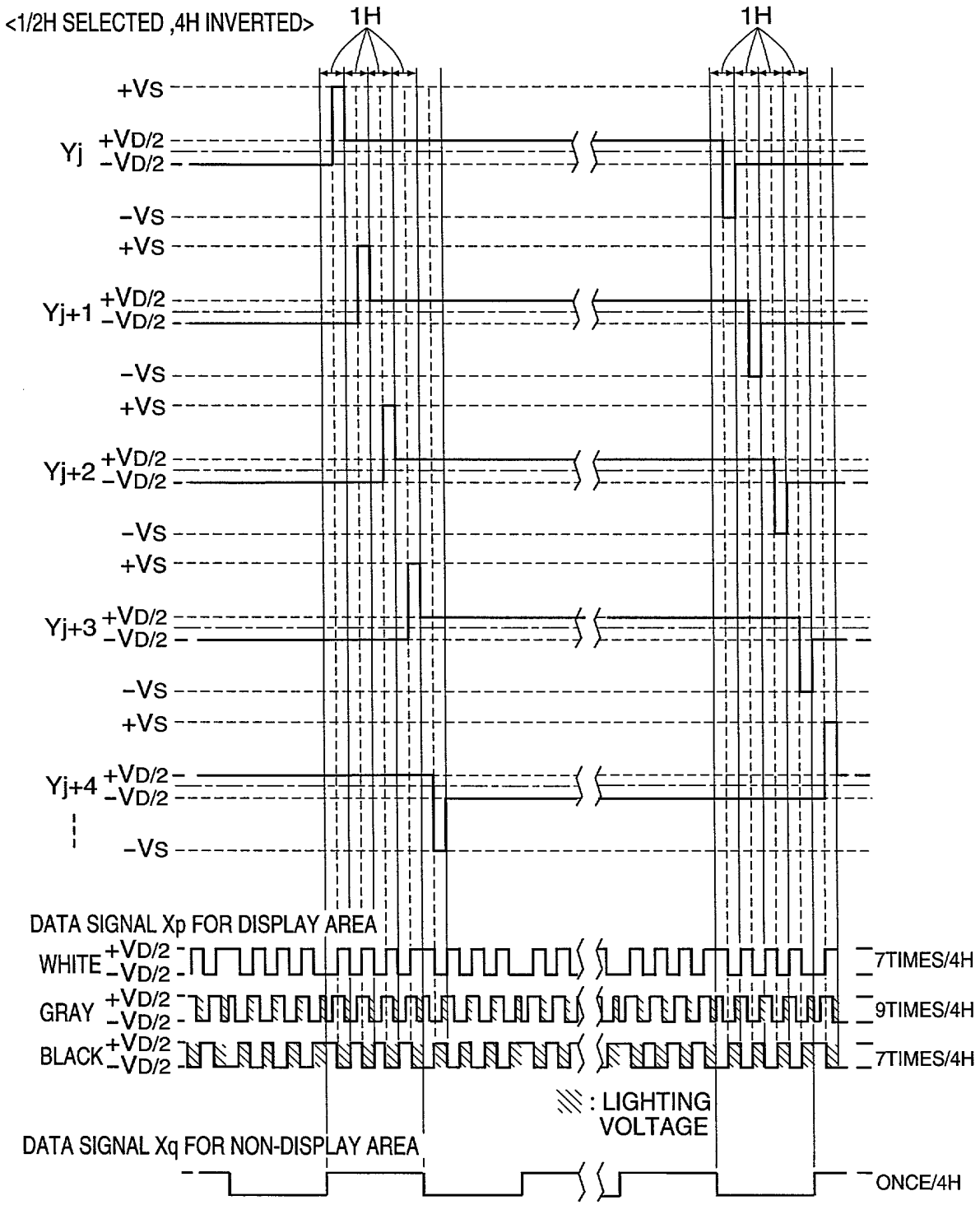

<1/2H SELECTED ,4H INVERTED>
1H
1H
+Vs
Yj +VD/2 -VD/2
-Vs
+Vs
Yj+1 +VD/2 -VD/2
-Vs
+Vs
Yj+2 +VD/2 -VD/2
-Vs
+Vs
Yj+3 +VD/2 -VD/2
-Vs
+Vs
Yj+4 +VD/2 -VD/2
-Vs
DATA SIGNAL Xp FOR DISPLAY AREA
WHITE +VD/2 -VD/2
GRAY +VD/2 -VD/2
BLACK +VD/2 -VD/2
7TIMES/4H
9TIMES/4H
7TIMES/4H
: LIGHTING VOLTAGE
DATA SIGNAL Xq FOR NON-DISPLAY AREA
ONCE/4H

FIG. 16

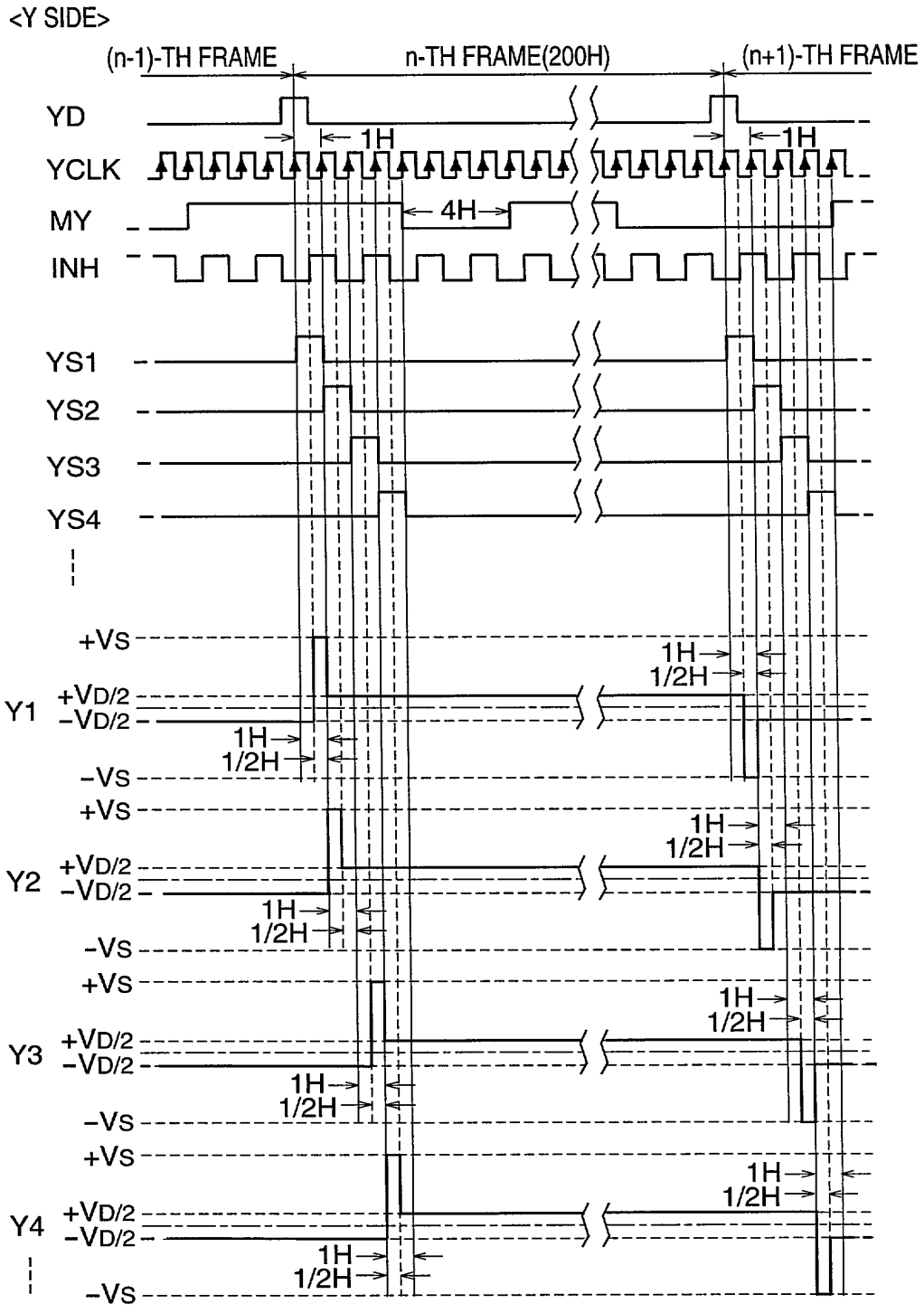

<Y SIDE>
(n-1)-TH FRAME
n-TH FRAME(200H)
(n+1)-TH FRAME
YD
YCLK
MY
INH
1H
4H
YS1
YS2
YS3
YS4
+Vs
-Vs
Y1
Y2
Y3
Y4
+VD/2
-VD/2
1H
1/2H

FIG. 17

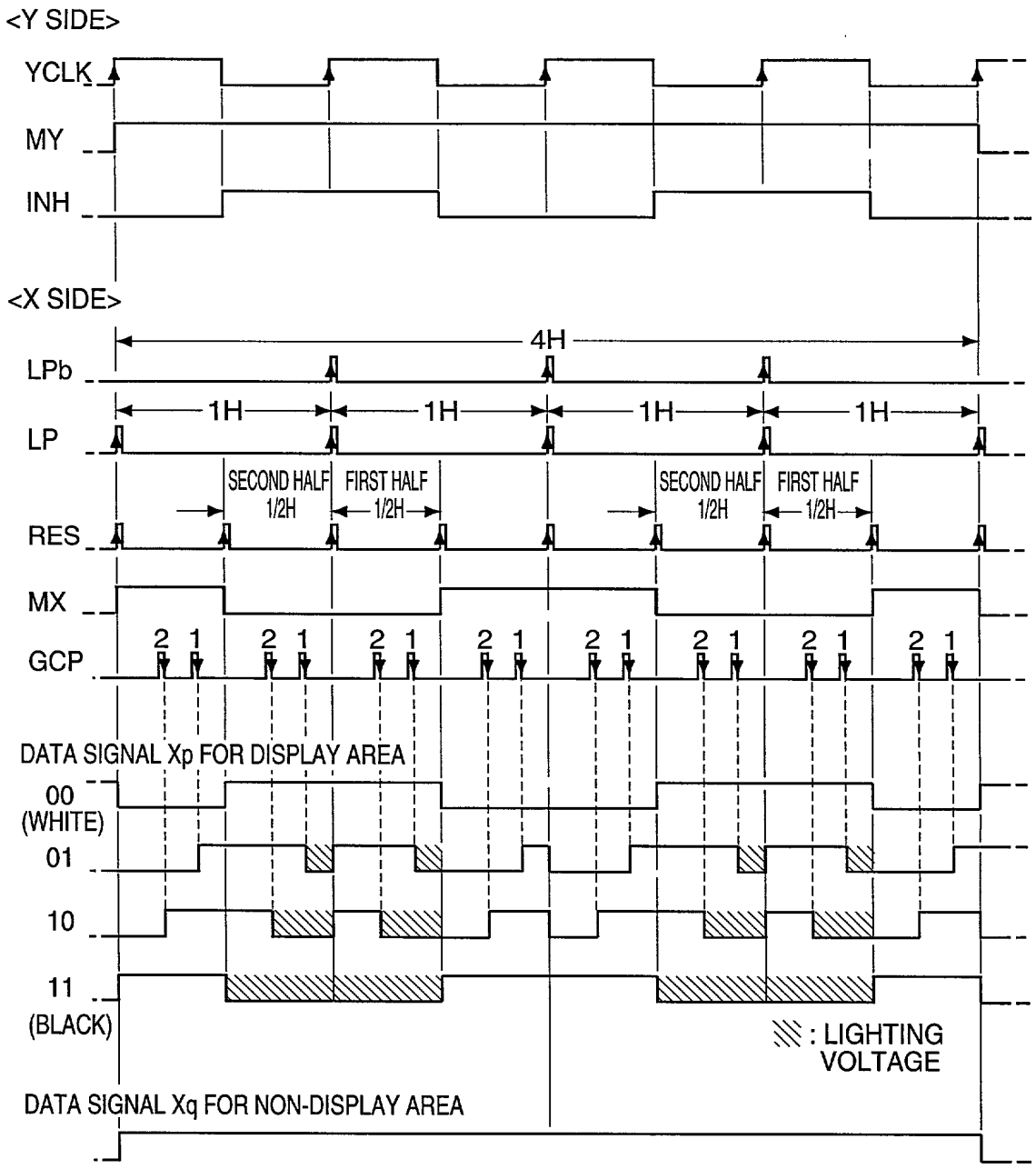

<Y SIDE>
YCLK
MY
INH
<X SIDE>
4H
LPb
1H
1H
1H
1H
LP
SECOND HALF 1/2H
FIRST HALF 1/2H
SECOND HALF 1/2H
FIRST HALF 1/2H
RES
MX
GCP
2 1
DATA SIGNAL Xp FOR DISPLAY AREA
00 (WHITE)
01
10
11 (BLACK)
: LIGHTING VOLTAGE
DATA SIGNAL Xq FOR NON-DISPLAY AREA

FIG. 18

<1/2H SELECTED ,4H INVERTED,FIRST AND SECOND HALVES >

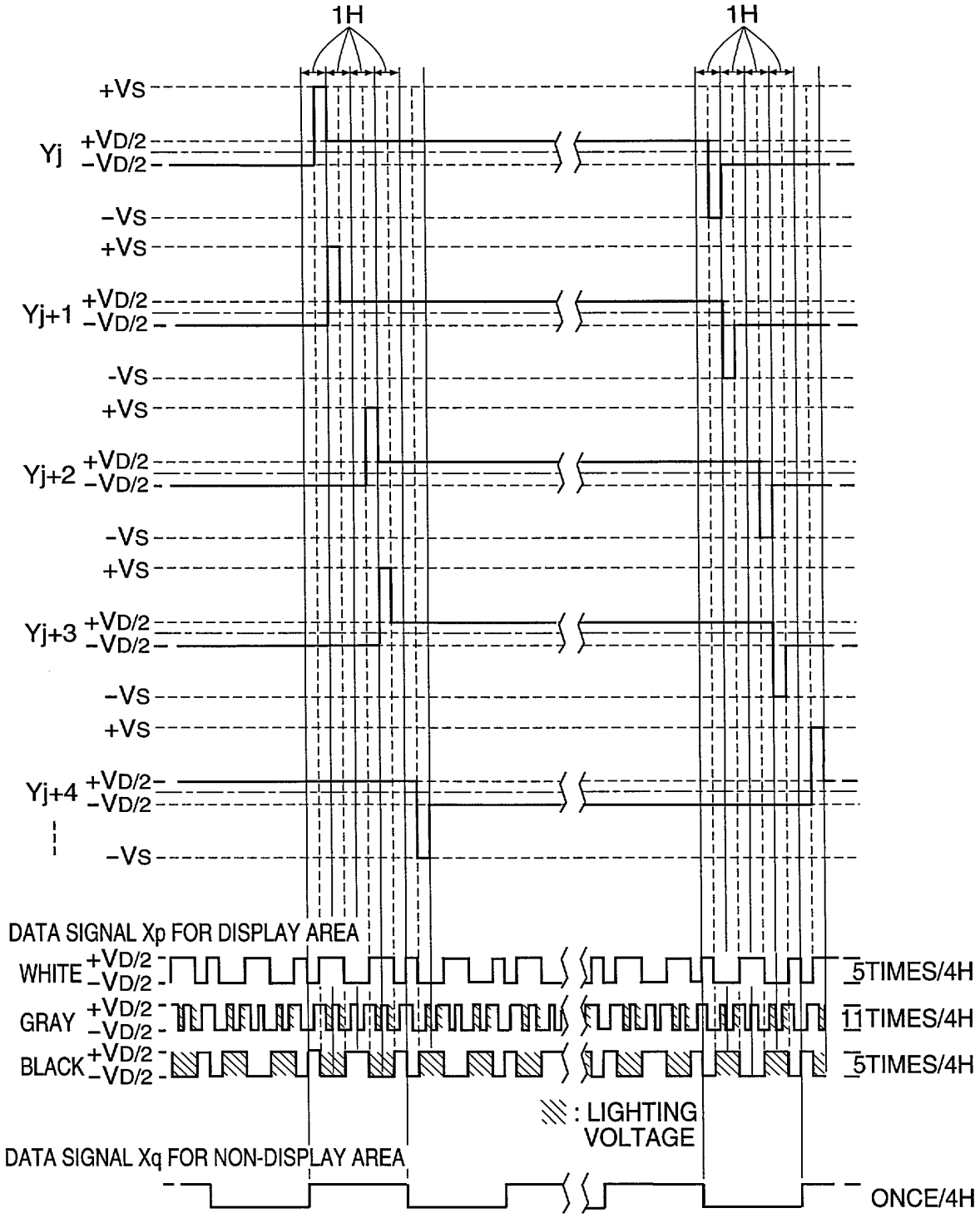
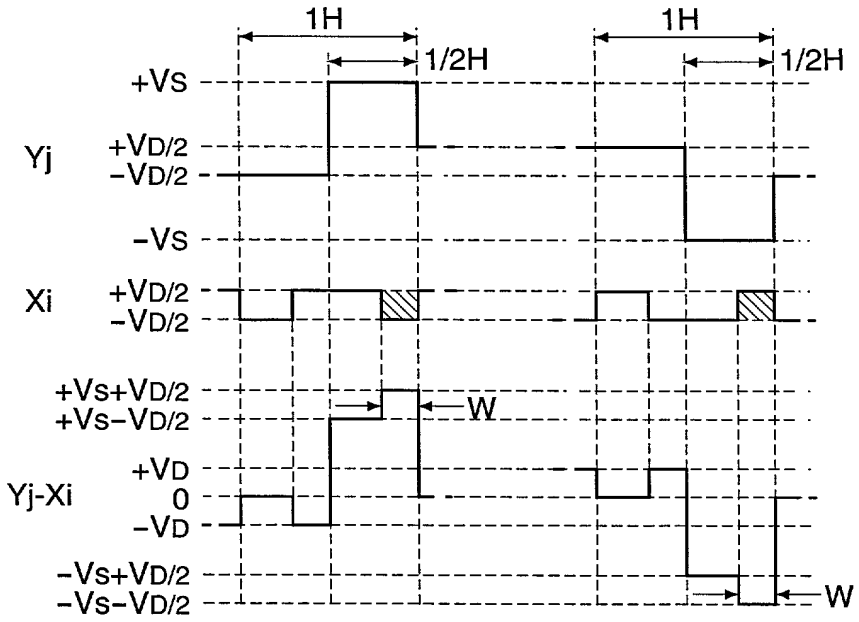
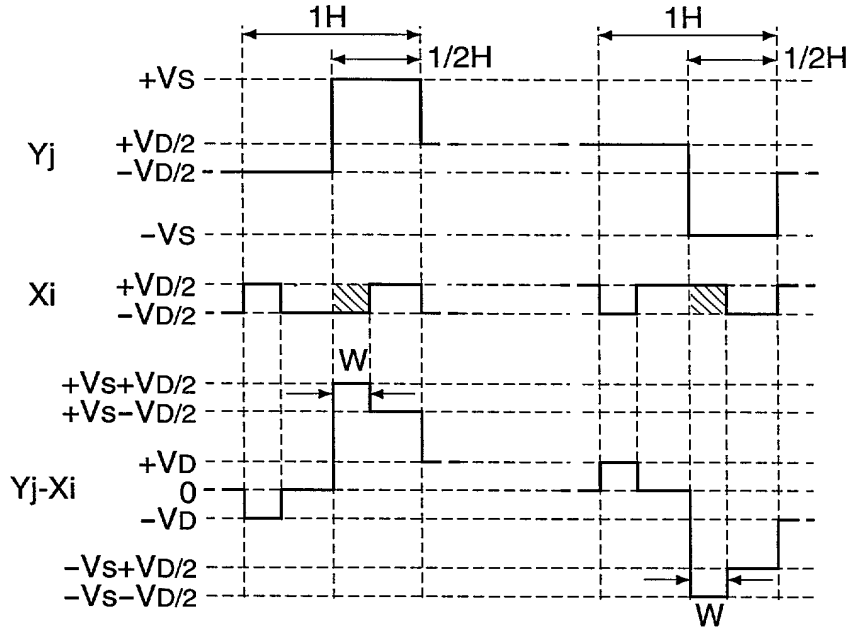



FIG. 19

(a) RIGHT-SHIFTED MODULATION METHOD




(b) LEFT-SHIFTED MODULATION METHOD




▨ : LIGHTING VOLTAGE

FIG. 20

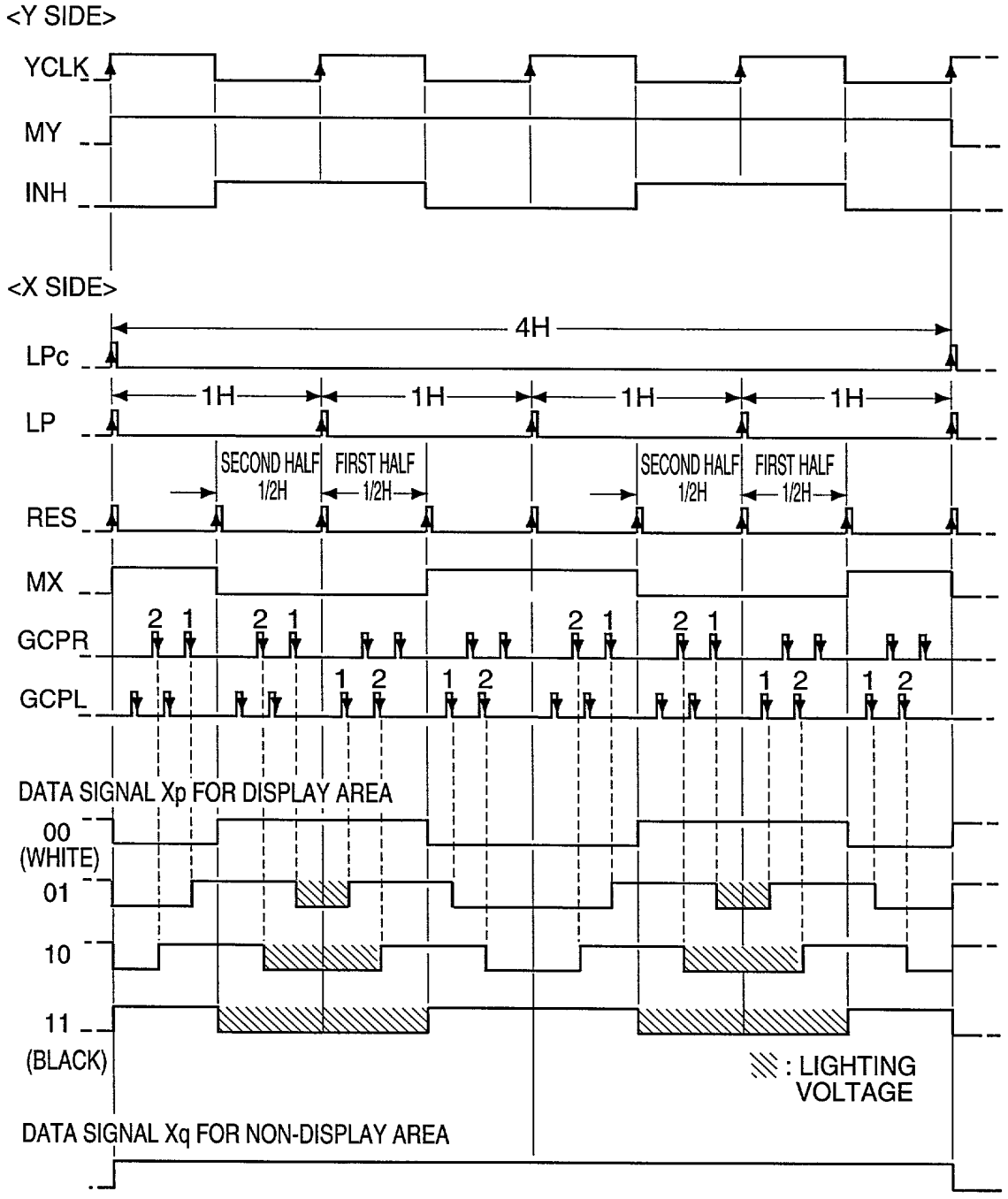

<Y SIDE>
YCLK
MY
INH
<X SIDE>
4H
LPc
1H
1H
1H
1H
LP
SECOND HALF 1/2H
FIRST HALF 1/2H
SECOND HALF 1/2H
FIRST HALF 1/2H
RES
MX
GCPR
GCPL
DATA SIGNAL Xp FOR DISPLAY AREA
00 (WHITE)
01
10
11 (BLACK)
: LIGHTING VOLTAGE
DATA SIGNAL Xq FOR NON-DISPLAY AREA

FIG. 21

EP 0 621 584 A2

<1/2H SELECTED ,4H INVERTED,FIRST AND SECOND HALVES (LEFT-SHIFTED,RIGHT-SHIFTED) >

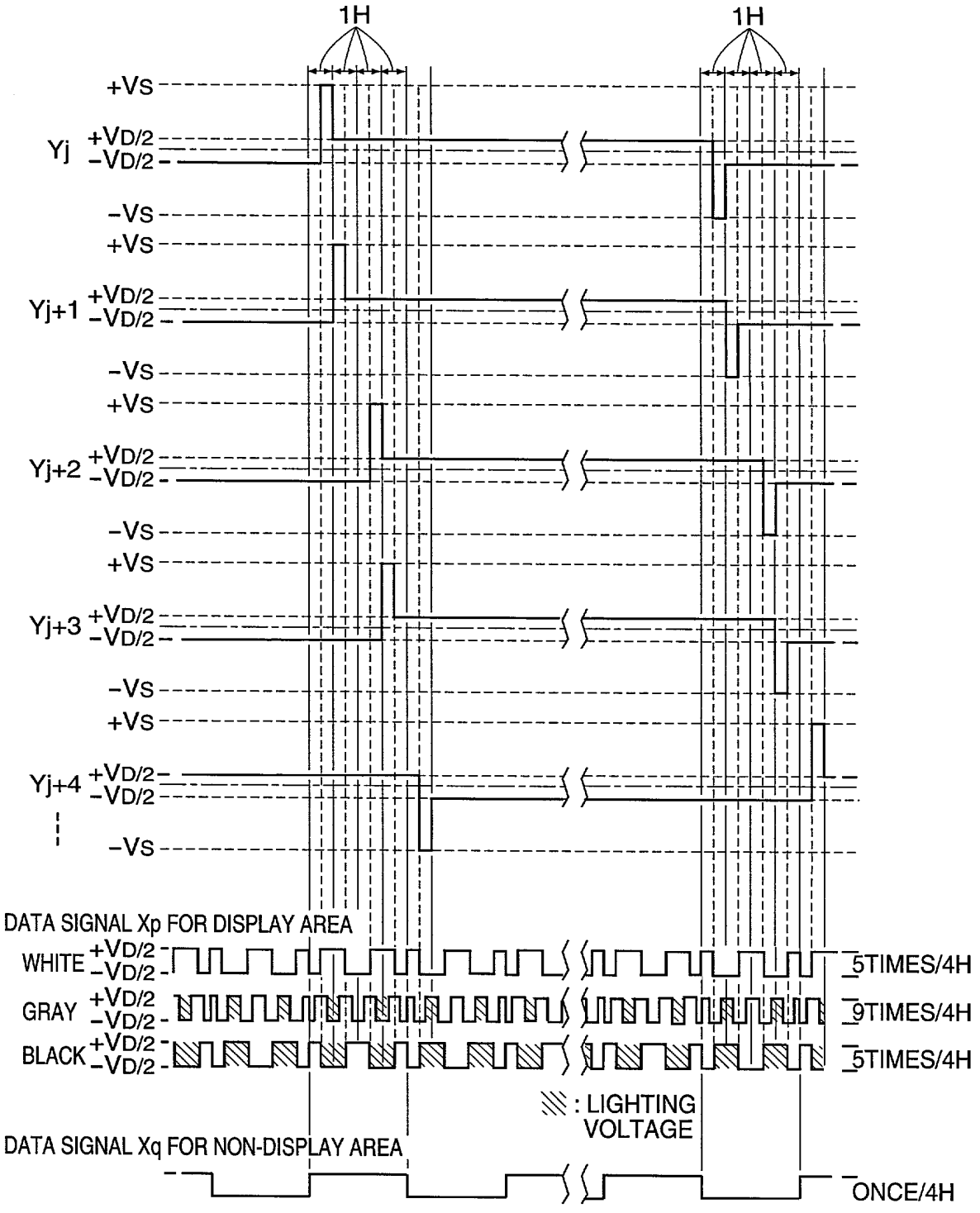



FIG. 22

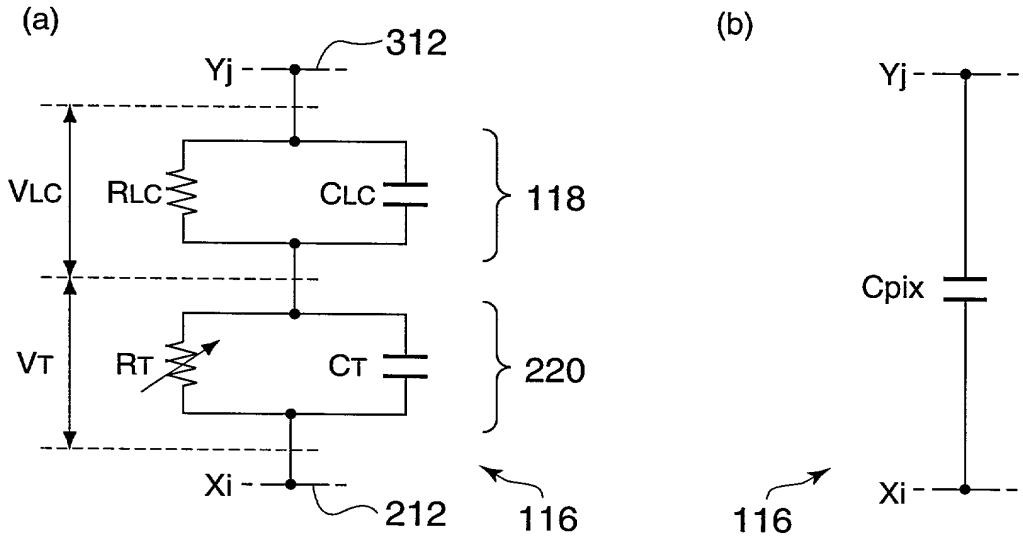



FIG. 23

<FOUR-VALUE DRIVING (1H SELECTED, 1H INVERTED)>

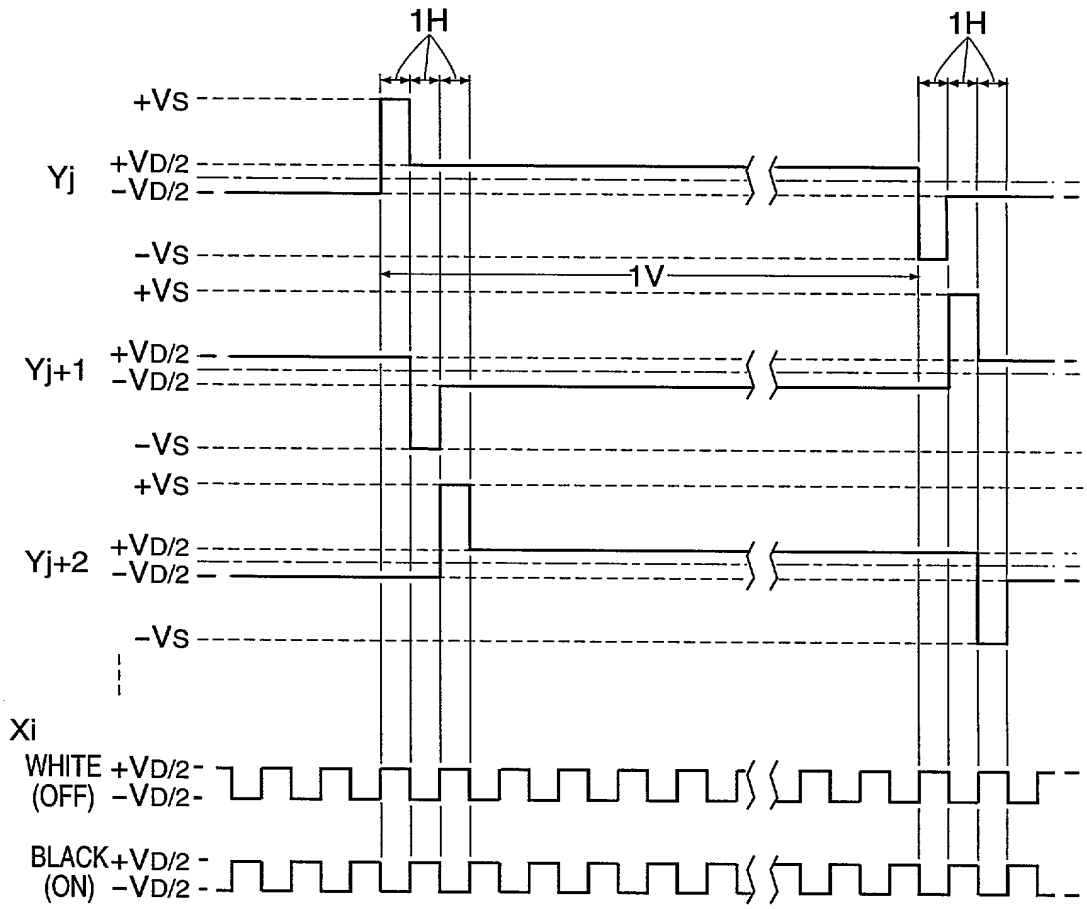



FIG. 24

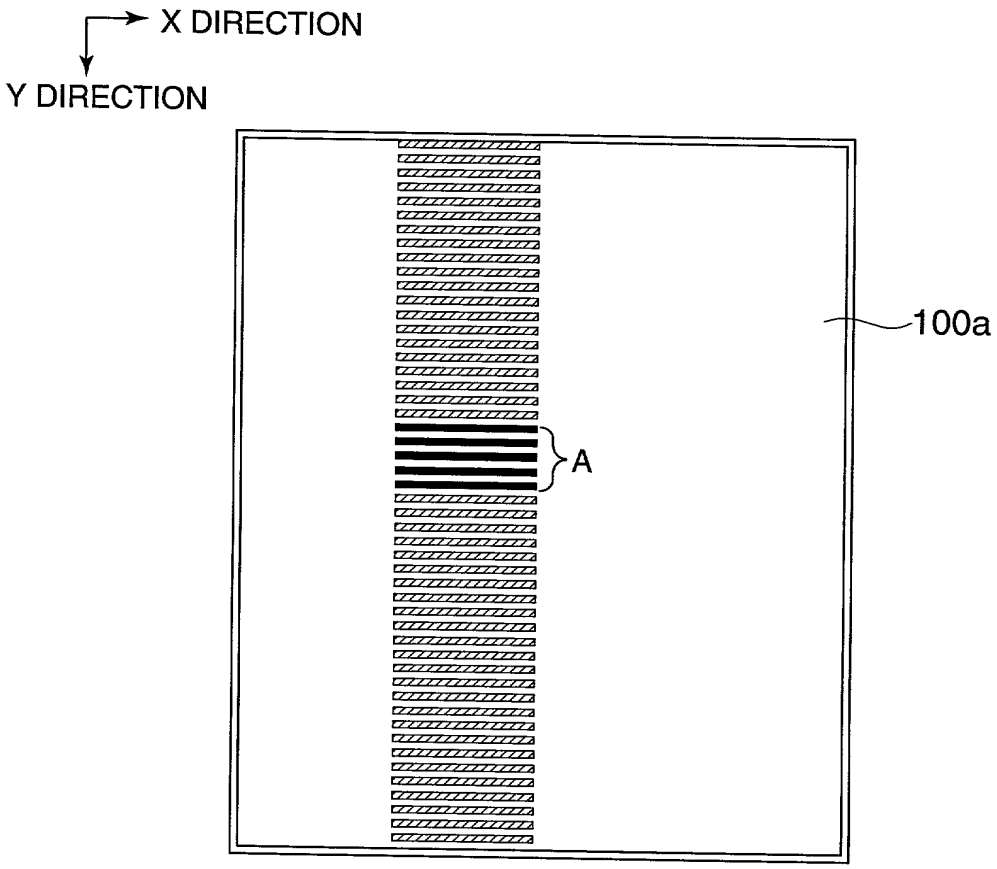



FIG. 25

<FOUR-VALUE DRIVING (1/2H SELECTED, 1H INVERTED)>

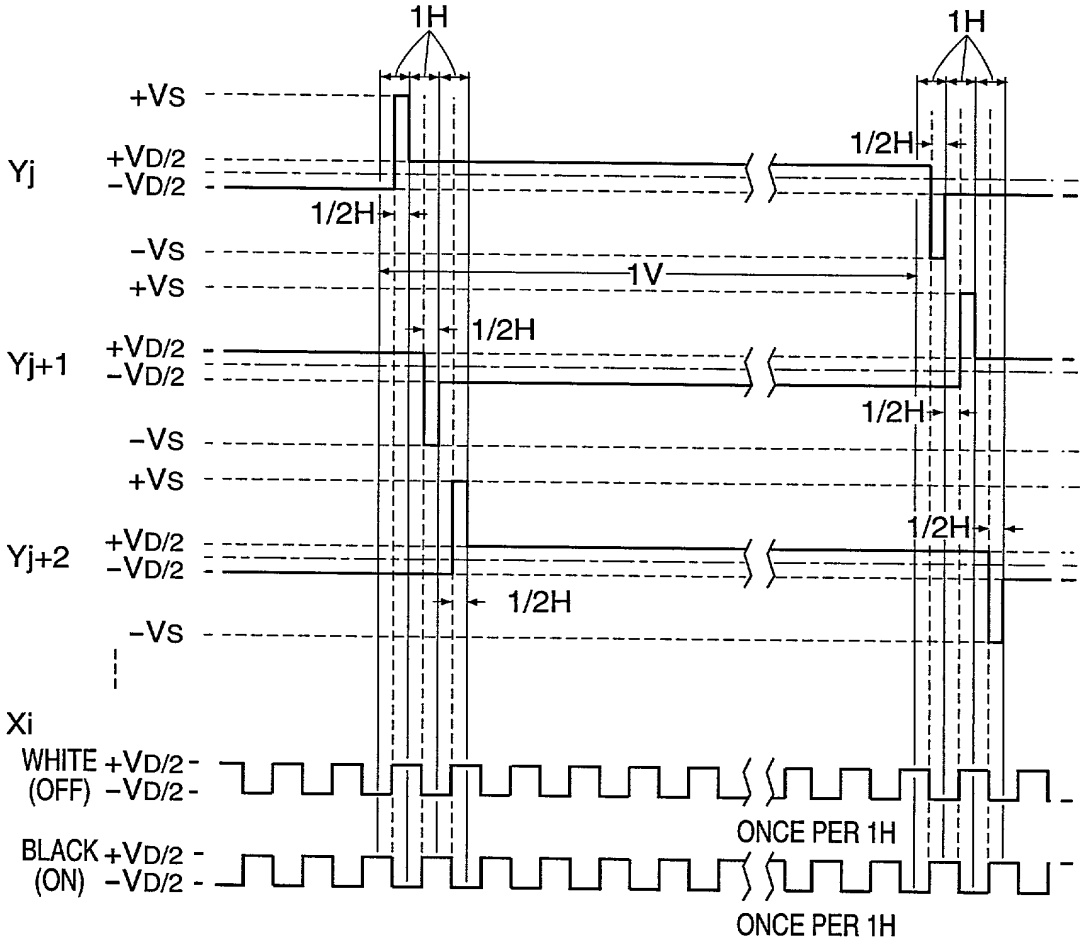



FIG. 26

EXHIBIT - 2035 - 0574

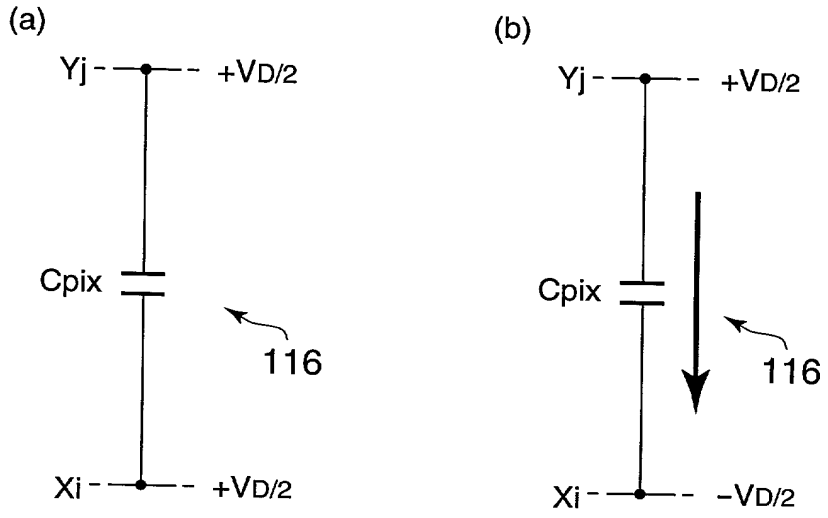



FIG. 27

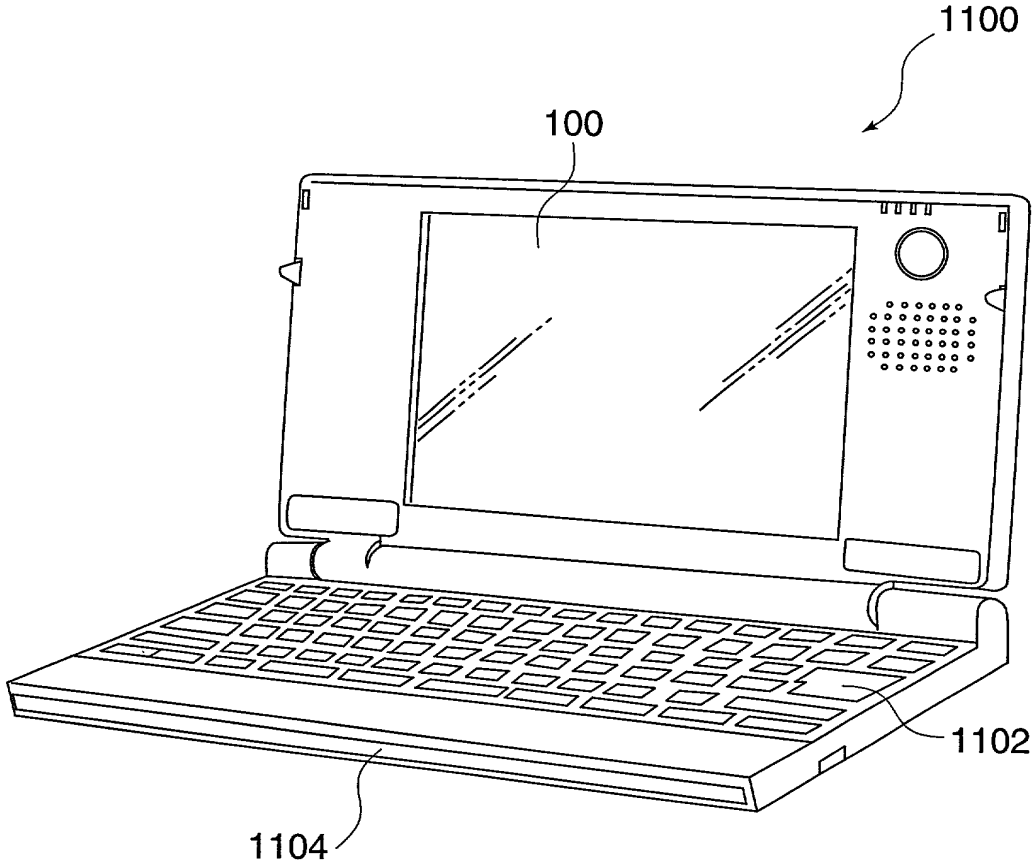



FIG.28

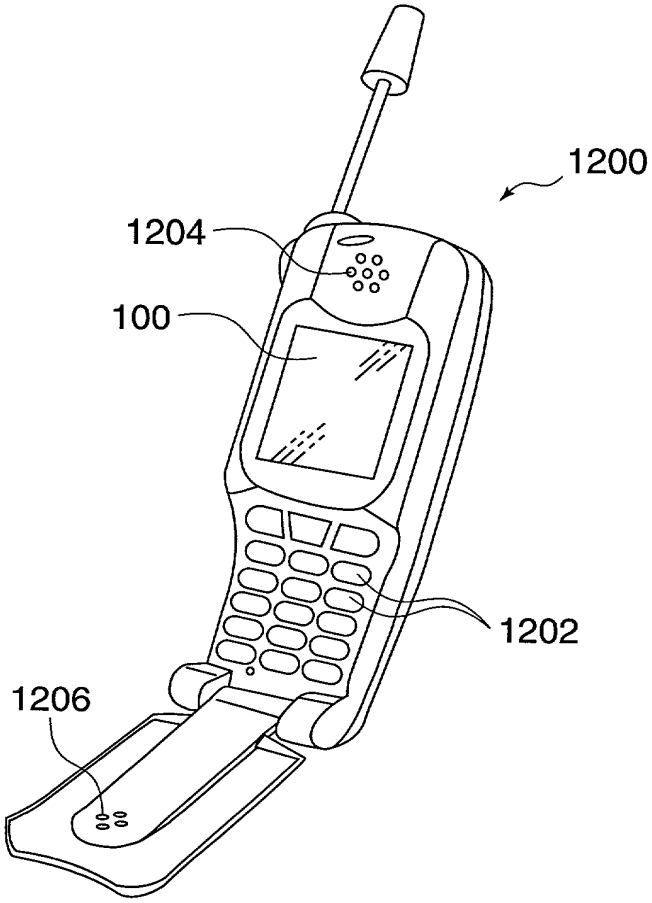



FIG. 29

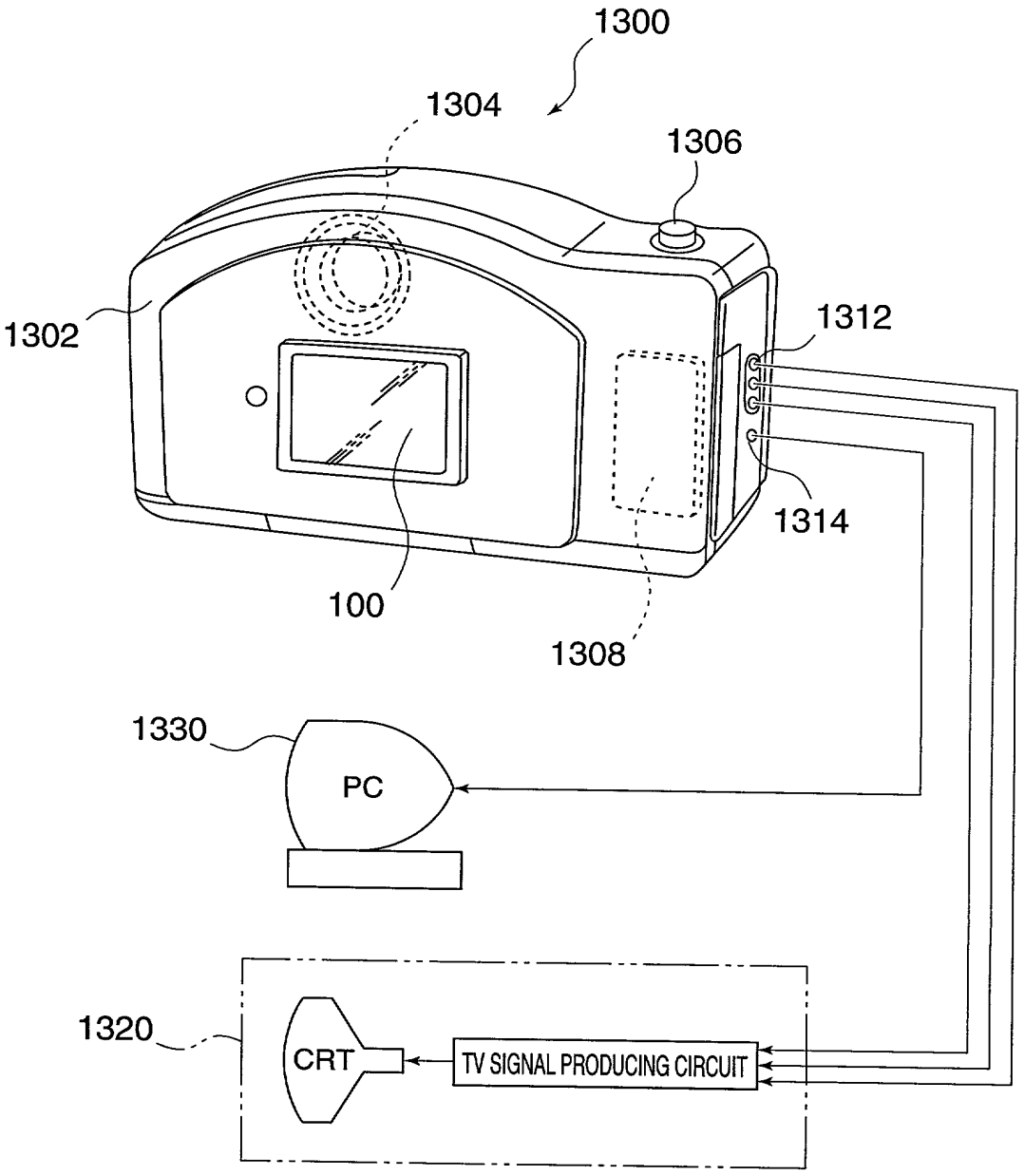

1300
1304
1306
1302
1312
1314
100
1308
1330
PC
1320
CRT
TV SIGNAL PRODUCING CIRCUIT

FIG. 30

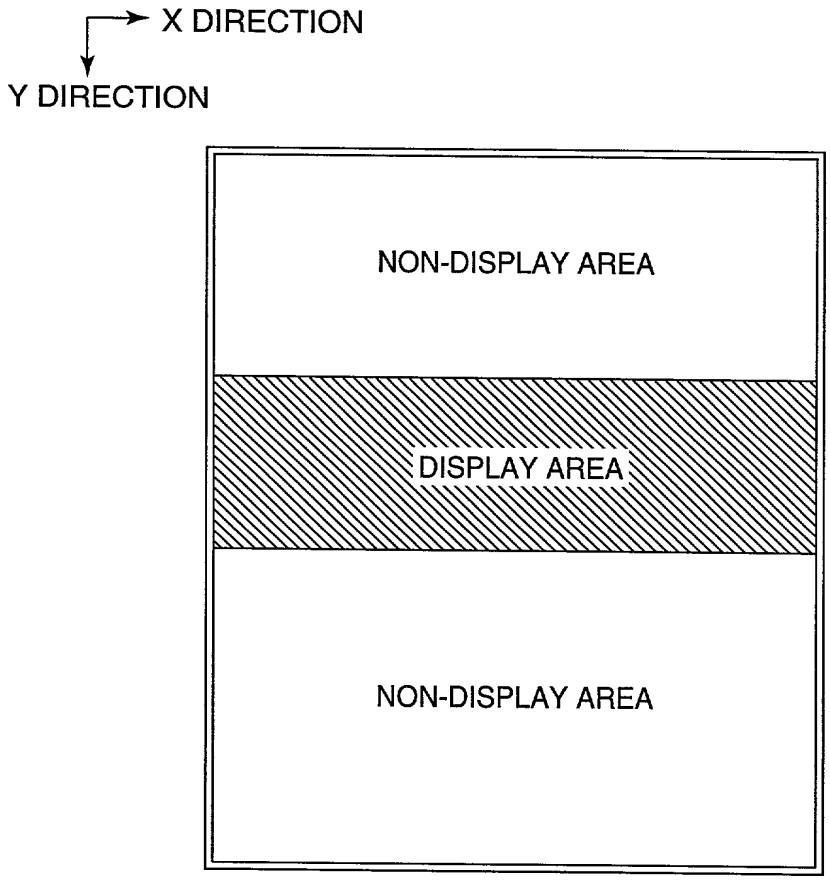

X DIRECTION
Y DIRECTION
NON-DISPLAY AREA
DISPLAY AREA
NON-DISPLAY AREA

FIG. 31